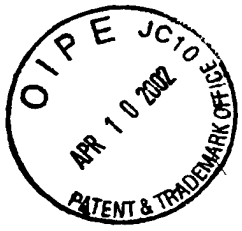
USA

INVESTOR IN PEOPLE



The Patent Office
Concept House
Cardiff Road
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I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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Signed J Evans.

Dated 28 January 2002

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23MAY01 E631545-2 002819
P01/7700 0.00-0112473.4

1/77

THE PATENT OFFICE
D
23 MAY 2001
NEWPORT

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

1. Your reference — C506.00/U

2. Patent application number *(The Patent Office will fill in this part)* — **0112473.4** — 23 MAY 2001

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Unilever PLC
PO Box 68
Unilever House
Blackfriars
London EC4P 4BQ

Patents ADP number *(if you know it)* 7512643001.

If the applicant is a corporate body, give the country/state of its incorporation — United Kingdom

4. Title of the invention — Dispensers for Drink or Food Products

5. Name of your agent *(if you have one)* — Keith W Nash & Co

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

90-92 Regent Street
Cambridge
CB2 1DP

Patents ADP number *(if you know it)* ~~1206001~~ 00495682005

Jacqueline Paul Victoria Evans
Unilever Plc
Patent Department
Colworth House
Sharnbrook
Bedford MK44 1LQ
Sign 4 24.8.0

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

a) yes

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	
Description	6
Claim(s)	2
Abstract	–
Drawing(s)	7

10. If you are also filing any of the following, state how many against each item.

Priority documents	–
Translations of priority documents	–
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	–
Request for preliminary examination and search *(Patents Form 9/77)*	1
Request for substantive examination *(Patents Form 10/77)*	–
Any other documents *(please specify)*	–

11. I/We request the grant of a patent on the basis of this application.

Signature Keith W Nash & Co Date 22.05.01

Keith W Nash & Co. Agents

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr D L Roberts 01223 355477

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.

b) Write your answers in capital letters using black ink or you may type them.

c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.

d) If you have answered 'Yes' Patents Form 7/77 will need to be filed.

e) Once you have filled in the form you must remember to sign and date it.

f) For details of the fee and ways to pay please contact the Patent Office.

C506.00/U

TITLE: DISPENSERS FOR DRINK OR FOOD PRODUCTS

This invention relates to dispensers for drink or food products.

The invention was devised to produce a dispenser which can incorporate a standard aerosol valve and can be operated by the mouth to dispense a drink or liquid food product directly into the mouth, requiring the use of one hand only or, in some embodiments, no hands (provided another means of support, for example a flat surface, is present).

According to the invention there is provided a dispenser comprising a container holding a liquid under pressure constituting a drink or foodstuff, the liquid being for human consumption, an outlet valve operable to dispense the liquid, and release means which are operable to open the valve to release the liquid from the container, the release means being shaped and positioned for engagement by a user's mouth or teeth to cause or enable release of liquid directly into the user's mouth.

The release means may be incorporated in an outlet portion of the dispenser. The outlet portion may be in the form of a tapering outlet nozzle surmounting the container, the nozzle incorporating a passage for the emerging liquid, the passage extending from the valve to an outlet orifice, conveniently at the upper end of the nozzle.

In some embodiments, the release means are operable to open the valve when the nozzle is subjected to a compressive biting action, to cause release of the liquid directly into the user's mouth.

In an alternative embodiment, the release means are shaped and positioned to be gripped between the user's teeth, opening of the valve requiring further manipulation or movement

of the container relative to the gripped release means. Such further manipulation or movement may be rotation or tilting of the container relative to the nozzle.

The valve is preferably an aerosol valve having a movable spring-loaded valve member.

Eight embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figures 1a and 1b are fragmentary diagrammatic sectional views of the first embodiment, respectively showing valve-closed and valve-open positions of the dispenser.

Figures 2a and 2b; 3a and 3b, 4a and 4b, 5a and 5b, 6a and 6b, 7a and 7b, 8a and 8b correspond to Figures 1a and 1b but respectively show second to eighth embodiments of dispenser, and

Figures 8 to 20 show the external appearance of the nozzles of the dispensers.

Referring to Figures 1a and 1b, the dispenser has a container which contains a liquid, such as a drink, under pressure. For example, the liquid may be pressurised with oxygen or carbon dioxide. The upper end of the container is in the shape of an inverted cup 0a. The liquid is capable of being released from the container by an aerosol valve having a movable valve member in the form of a valve stem 0b formed as a tubular passage communicating with the interior of the container.

The container is surrounded by an outer cover 1 which projects above the container and also above the valve. The upper part of the outer cover 1 forms a tapering nozzle having a central passage constituted by a stem extension 5 leading from the valve to an outlet orifice at the upper end of the nozzle. The nozzle is shaped so that when it is inserted in the mouth, the lips engage the nozzle to provide a seal.

The tapering wall of the nozzle has a circular aperture 3 through which projects a button 4 attached to the stem extension 5. The button 4 is movable between a normal inoperative position shown in Figure 1a and a depressed operative position shown in Figure 1b. In the position of the button illustrated in Figure 1a, the valve is closed so no liquid can escape from the container. In the position of the button illustrated in Figure 1b, the button 4 has displaced the valve stem 0b, pressing it down vertically by means of member 5 rotating about a pivot or hinge point 6. Thus the stem 0b is linearly displaceable in this embodiment. The area 2 of the nozzle opposite to the button 4 is formed with a textured surface, e.g. by the integral moulding of recesses or projections or by the application of a piece of non-slip material. A similar non-slip area 2 may be provided on the surface of the button 4.

Figures 9 and 10 show front and rear views of the nozzle of the dispenser of Figures 1a and 1b. As shown, the end of the button 4 may have a textured surface to aid engagement by the teeth.

In use of the dispenser of Figures 1a and 1b, the outer case is grasped and the nozzle is inserted in the user's mouth. To open the valve and thus dispense the drink directly into the mouth, the user applies a biting action between the button 4 and the area 2 so as to depress the button 4 in the direction of movement illustrated by the solid arrow in Figures 1a and 1b. The textured surfaces of the button 4 and the area 2 prevent slippage of the user's teeth. The button reverts 4 to its normal extended position (and the valve to its closed position) when the compressive force applied across the nozzle as a result of the biting action is removed. Thus, delivery of the liquid directly into the user's mouth requires the use of one hand only to hold and support the outer case. Delivery of the liquid is controlled by the biting action applied to the nozzle.

In the remaining figures, parts corresponding to those of Figures 1a and 1b bear the same reference numerals.

The button 4 of the dispenser of Figures 2a and 2b is not attached to the stem extension 5 but is attached by the hinge point 6 to the outer surface of the nozzle. When the button 4 is engaged by the user's teeth (Figure 2b) it pivots about the hinge 6 and this displaces the stem 0b, thereby opening the valve so as to dispense the liquid directly into the user's mouth. The stem extension 5 may be made of a flexible material, so that it can flex and thereby maintain a good seal with the valve stem 0b, during operation.

The external appearance of the nozzle of the dispenser of Figures 2a and 2b is shown in Figures 11 and 12 which are front and rear views respectively.

Figures 3a and 3b show a dispenser having two depressible buttons 4 on opposite sides of the nozzle, each button being like the button 4 of Figures 2a and 2b. When the two buttons 4 are depressed, they pivot about the hinges 6 and engage a downwardly diverging frusto-conical shape at the end of the stem extension 5, so as to depress the stem 0b and open the valve, thereby dispensing the liquid. Thus, the stem 0b is linearly displaceable in this embodiment. Figures 12 and 13 show, in front and rear views, the external appearance of the nozzle of the dispenser of Figures 3a and 3b.

The button 4 of Figures 4a and 4b is mounted on the stem extension 5 and when it is depressed (Figure 4b) it tilts the stem extension 5 so as to open the valve, thereby dispensing the liquid. The external appearance is the same as that of the nozzle of Figures 1a and 1b, i.e. as shown in Figures 9 and 10.

The dispenser of Figures 5a and 5b is similar, but the button 4 is lower down on the nozzle and, when depressed, the stem extension 5 pivots about a fulcrum point 6 near the top of the nozzle. Figures 15 and 16 show the external appearance of the nozzle of the dispenser of Figures 5a and 5b. Alternatively, the top of the stem extension may be firmly fixed to the top of the nozzle, and the stem extension 5 is made of a flexible material. In this variation, the button attached to the stem extension is typically higher up, and when the button is depressed, it causes the stem extension 5 to flex and at the same time the valve stem 0b to tilt, thereby opening the valve. The flexibility of the stem extension in this

alternative allows a good seal to be maintained between the valve stem 0b and the stem extension 5, during operation.

The dispenser of Figures 6a and 6b has a flexible stem extension 5, which during operation is pressed upon by button 4. Depressing button 4 causes the stem extension to flex, thereby tilting the valve stem 0b and opening the valve. The button 4 is attached to the outer cover 1, by means of a hinge. The external appearance of the nozzle of Figures 6a and 6b is the same as that of the nozzle of Figures 2a and 2b, i.e. as shown in Figures 11 and 12.

A biting action applied in the direction of the solid arrows in the dispenser of Figures 7a and 7b causes a downward force to be applied to the nozzle which has a concertina formation 11 allowing the upper part of the nozzle to be moved towards the container. The downward force applied to the nozzle is transferred to the valve stem 0b so as to open the valve, thereby dispensing the liquid. Figures 17 and 18 illustrate the external appearance of the nozzle of the dispenser of Figures 7a and 7b, and show the concertina formation of the nozzle.

The dispenser of Figures 8a or 8b has a nozzle threaded onto the remainder of the dispenser, providing for relative rotation of the nozzle and the remainder of the dispenser. The nozzle has an annular recess to receive the bite of a user who grips the nozzle between his teeth and then grasps the outer cover (where it surrounds the container) so as to rotate the container relative to the nozzle. This rotation (indicated by the solid arrows in Figure 7b) causes the valve stem to open the valve so as to dispense the drink directly into the user's mouth. Figures 19 and 20 illustrate the external appearance of the nozzle of the dispenser of Figures 8a and 8b.

In all embodiments, the delivery of liquid is directly into the user's mouth, under the control of the user's bite. The user's fingers do not need to touch any part of the nozzle, thereby reducing the chance of the nozzle becoming contaminated. If desired a protective and replaceable cap may cover the nozzle.

In Figures 9 to 20, the reference numeral 7 indicates either the general area in which the hinge 6 is located (for the nozzle of Figures 5a and 5b) and/or where the nozzle can be attached to a flexible tube. The reference numeral 10 denotes the exit for the liquid from the dispenser.

CLAIMS

1. A dispenser comprising a container holding a liquid under pressure constituting a drink or foodstuff, the liquid being for human consumption, an outlet valve operable to dispense the liquid, and release means which are operable to open the valve to release the liquid from the container, the release means being shaped and positioned for engagement by a user's mouth or teeth to cause or enable release of liquid directly into the user's mouth.

2. A dispenser according to claim 1, wherein the release means are incorporated in an outlet portion of the dispenser.

3. A dispenser according to claim 2, wherein the outlet portion is a tapering outlet nozzle surmounting the container.

4. A dispenser according to claim 3, wherein the nozzle incorporates a passage for the emerging liquid, the passage extending from the valve to an outlet orifice at the upper end of the nozzle.

5. A dispenser according to claim 3 or 4, wherein the release means are operable to open the valve when the nozzle is subjected to a compressive biting action, to cause release of the liquid directly into the user's mouth.

6. A dispenser according to claim 3 or 4, wherein the nozzle is shaped and positioned to be gripped between the user's teeth, opening of the valve requiring further manipulation or movement of the container relative to the gripped release means.

7. A dispenser according to claim 6, wherein said further manipulation or movement is rotation or tilting of the container relative to the nozzle.

8. A dispenser according to any of the preceding claims, wherein the release means include a button mounted in the nozzle, the button being movable between a valve-closed position and a valve-open position to which it can be moved by a biting action applied across the nozzle.

9. A dispenser according to claim 8, wherein the valve has a valve member which is movable with a tilting action to open the valve.

10. A dispenser according to claim 8, wherein the valve has a valve member which is linearly displaceable to open the valve.

11. A dispenser according to any of claims 8 to 10, wherein the button has an end surface textured to prevent slippage of the user's teeth.

12. A dispenser according to any of claims 8 to 11, wherein the area of the nozzle opposite to the button has a textured surface to prevent slippage of the user's teeth.

13. A dispenser according to any of the preceding claims, in which the outlet portion comprises a nozzle having an outlet end through which the liquid emerges, the release means being so spaced from the outlet end that the outlet end projects beyond the user's teeth, and into the user's mouth, when the release means is being engaged by the user's teeth.

14. A dispenser according to claim 13, in which the release means is carried by the nozzle.

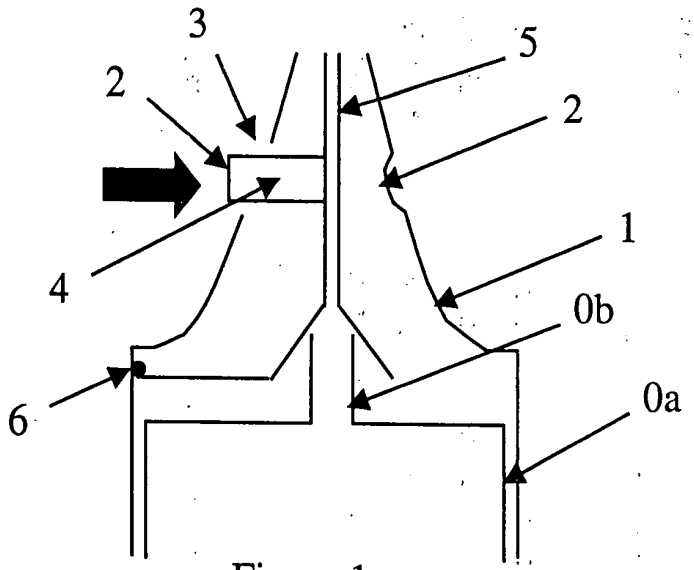

Figure 1a

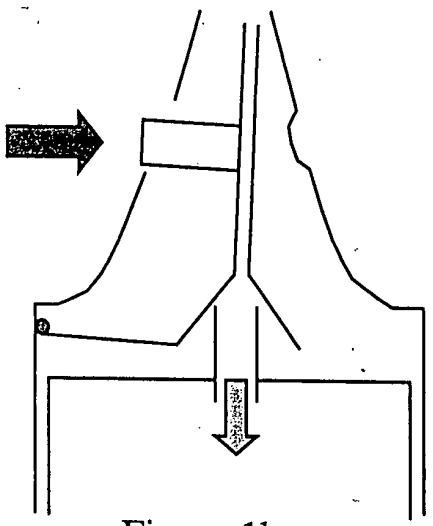

Figure 1b

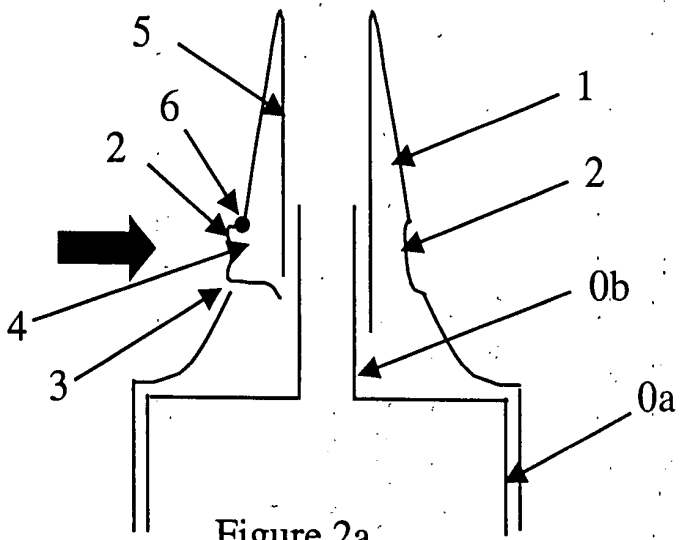

Figure 2a

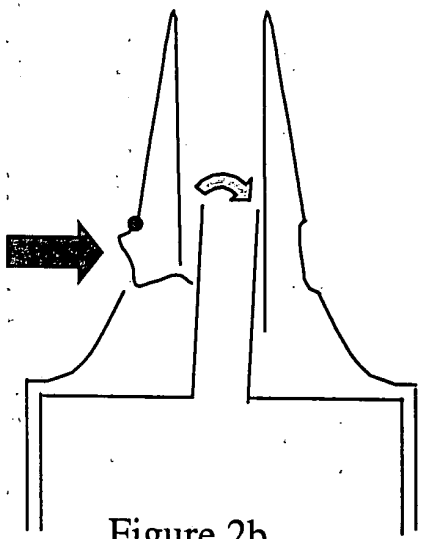

Figure 2b

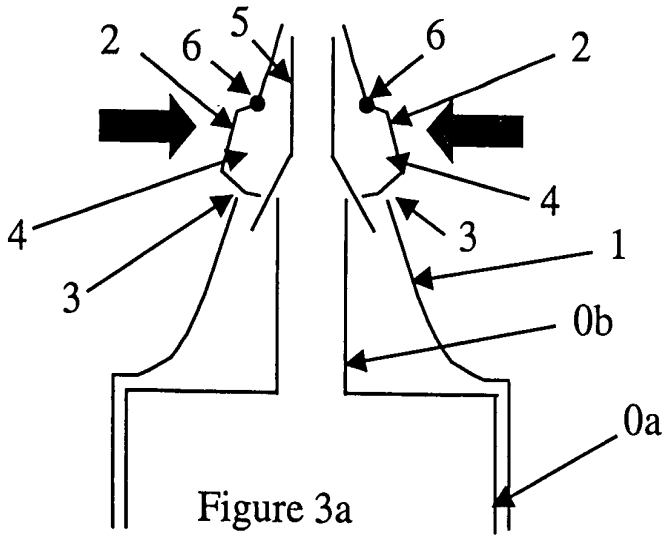

Figure 3a

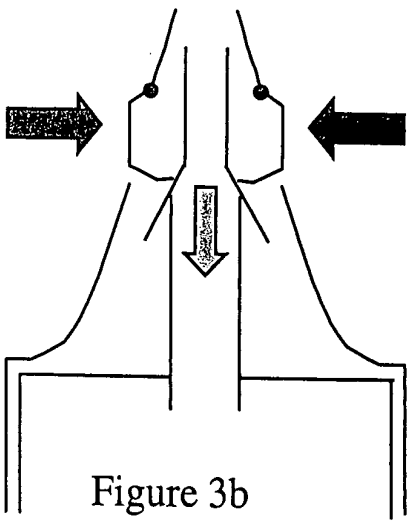

Figure 3b

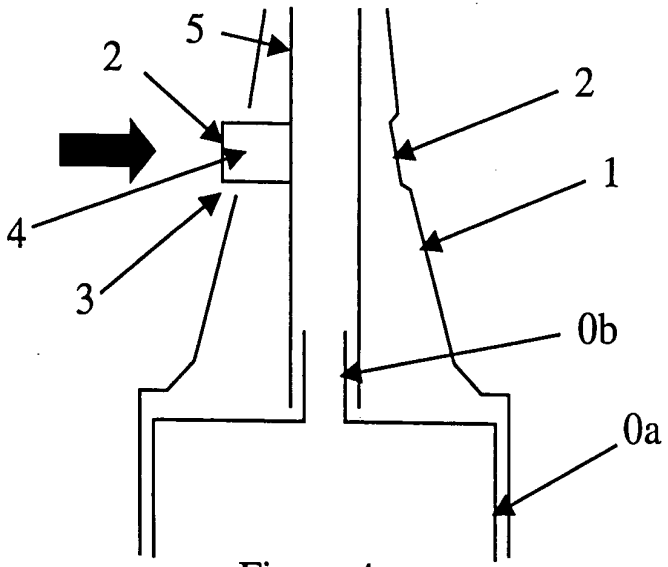

Figure 4a

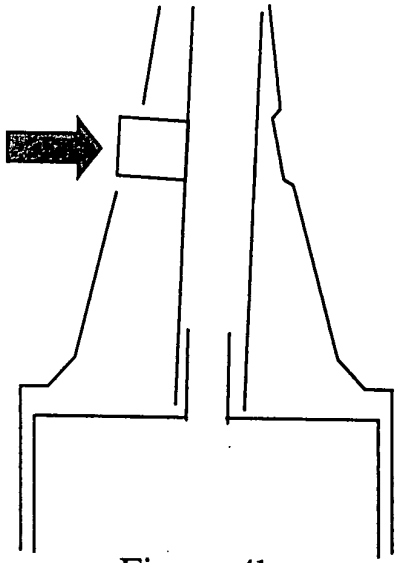

Figure 4b

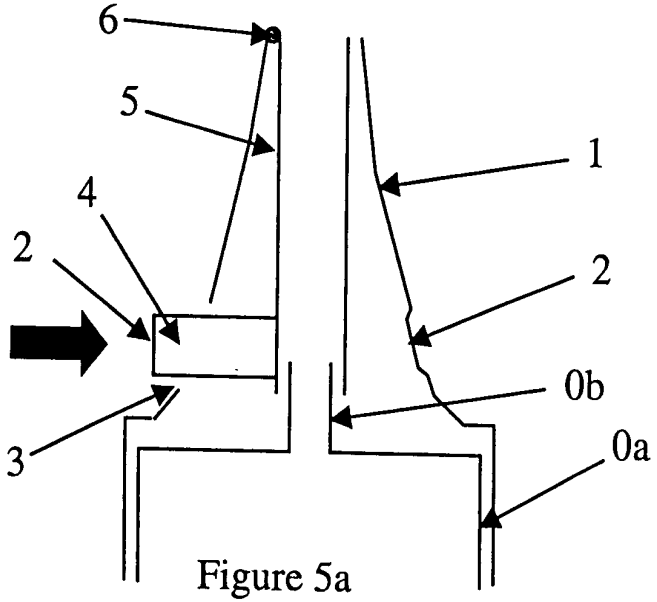

Figure 5a

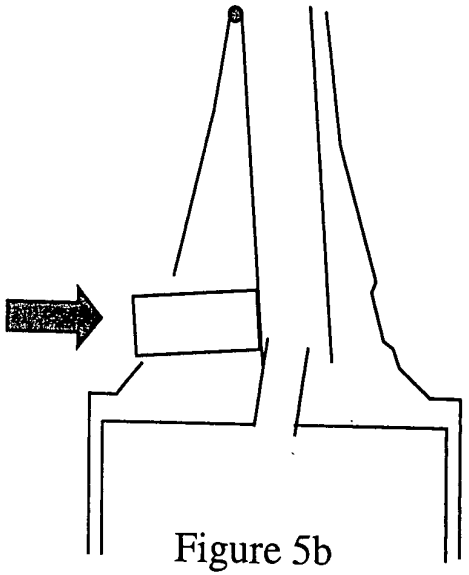

Figure 5b

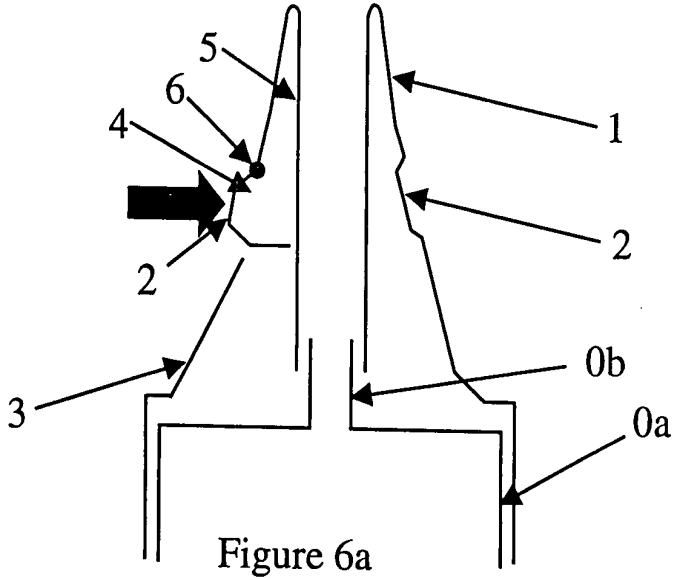

Figure 6a

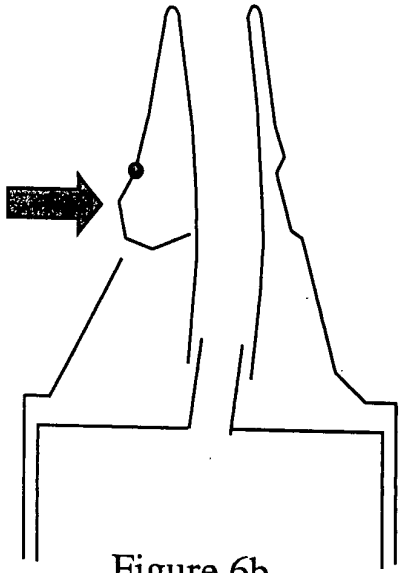

Figure 6b

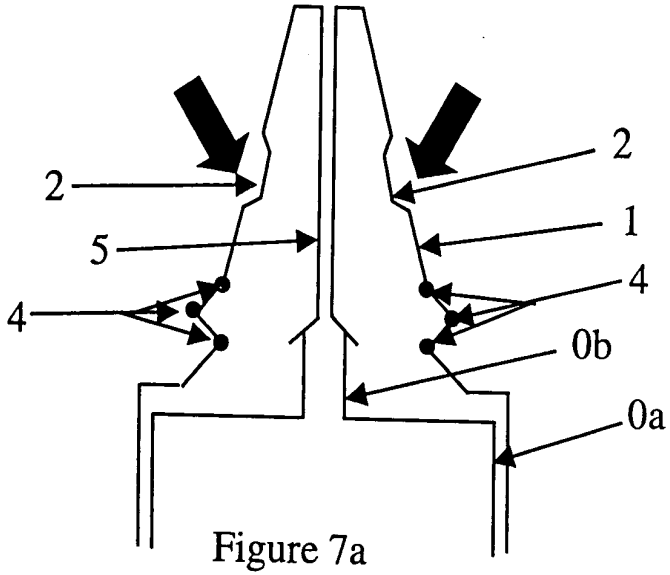

Figure 7a

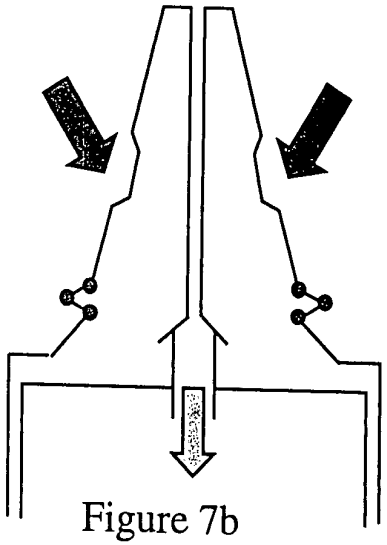

Figure 7b

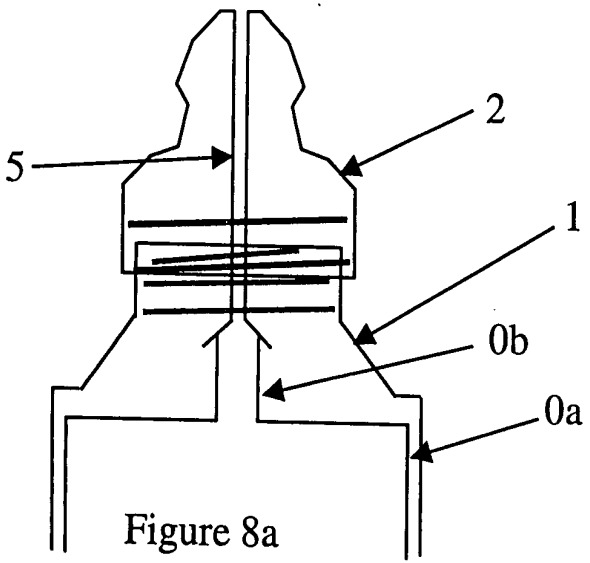

Figure 8a

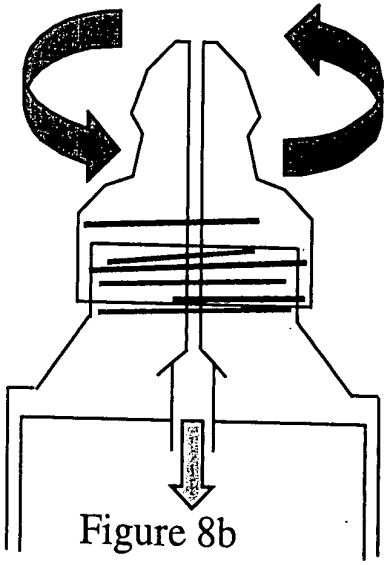

Figure 8b

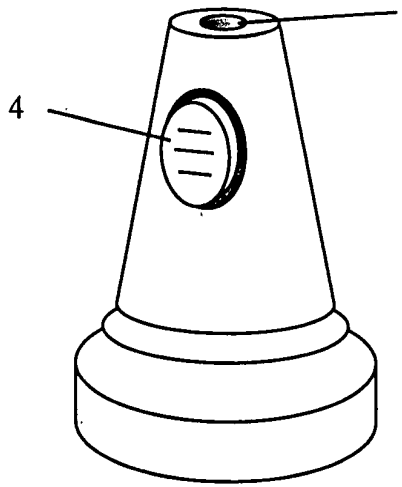

Figure 9

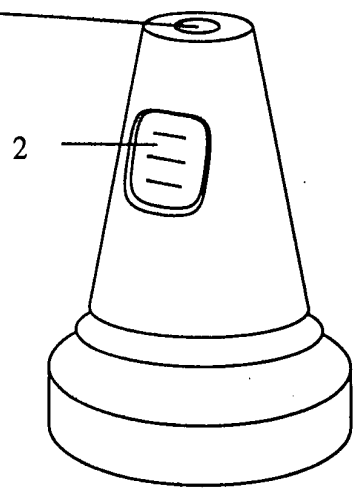

Figure 10

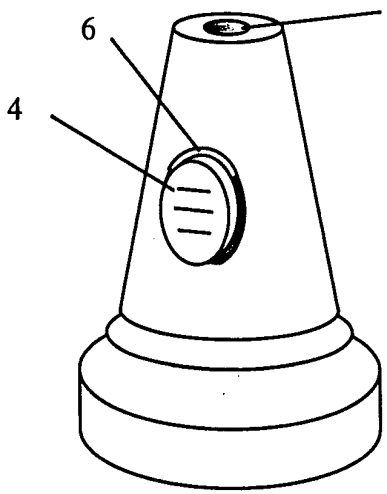

Figure 11

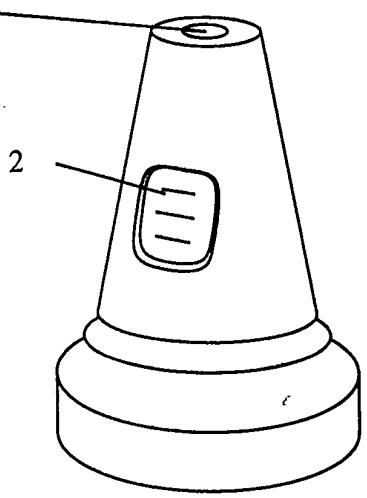

Figure 12

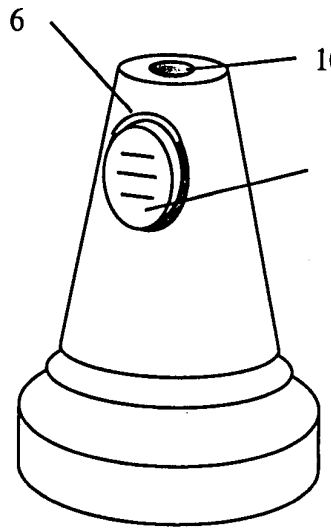

Figure 13

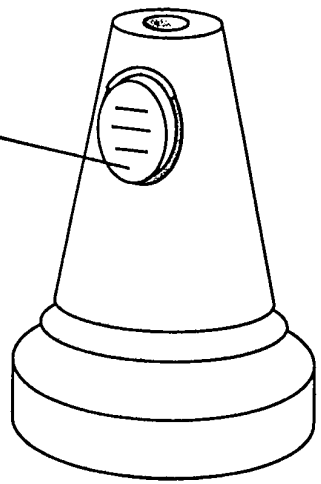

Figure 14

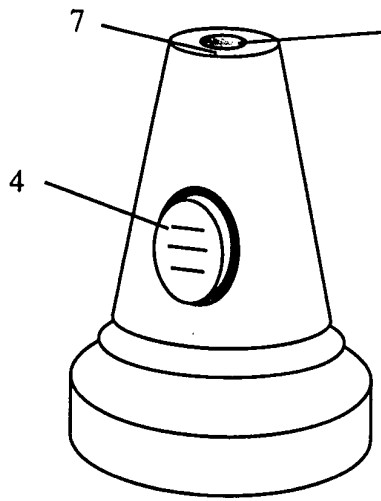

Figure 15

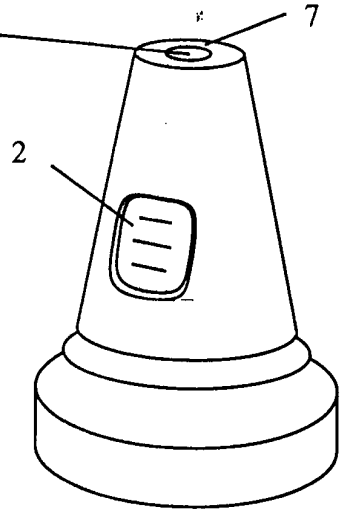

Figure 16

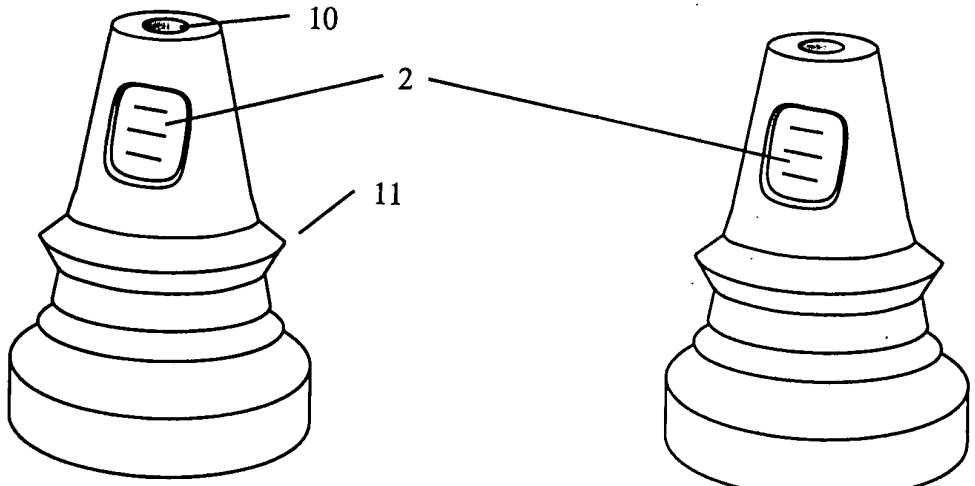

Figure 17

Figure 18

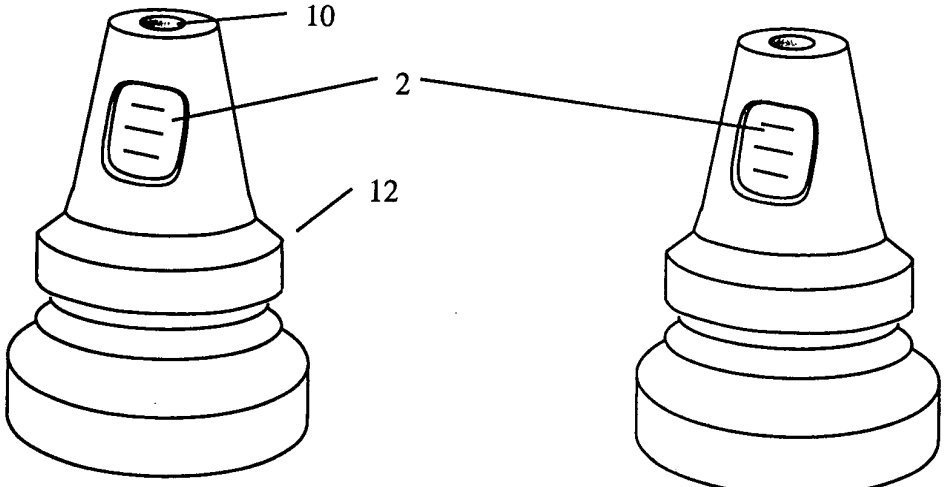

Figure 19

Figure 20